USB 3.0 ENGINEERING CHANGE NOTICE

ECR# 005

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Title: Maximum Un-mating force value definition to micro connector USB 3.0

Applies to: Universal Serial Bus 3.0 Specification, Revision 1.0

Brief description of the functional changes proposed:
Change: Specify a maximum un-mating force value of 25N for micro series connectors. Also, as a guide to Micro-series plug designers, reference dimensions are added for the angle and typical height of the latch feature on the plug.

Benefits as a result of the proposed changes:
As is common among connector specifications, currently there is no upper limit on the un-mating force of the Micro-series connectors. However, the variation in design of the passive latching feature has led to combinations with excessive extraction forces, resulting in customer dissatisfaction and the potential for device failures (broken cables or peeled off receptacles).

An assessment of the impact to the existing revision and systems that currently conform to the USB specification:
Most of the current receptacle + plug combinations fulfill this compliance already.

An analysis of the hardware implications:
None.

An analysis of the software implications:
None.

An analysis of the compliance testing implications:
The un-mating force is already been measured in compliance testing according to EIA 364-13 (testing standard and equipment exists). Test should be made in test group 1, after test 1-1 and 1-2 (Max mating force and contact resistance tests) before durability cycle test; other tests as done now.

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Actual Change Requested

In Section 5.7.1 Mechanical Requirements (of Universal Serial Bus 3.0 Specification, Revision 1.0)

From :

5.7.1.2 Extraction force (EIA 364-13)

The connector extraction force shall not be less than 10N initial and 8N after the specified insertion/extraction or durability cycles (at a maximum rate of 12.5 mm (0.492”) per minute).

- No burs or sharp edges are allowed on top of locking latches (hook surfaces which will rub against the receptacle shield).

- It is recommend to use a non-silicon based lubricant on the latching mechanism to reduce wear. If used the lubricant may not affect any other characteristic of the system.

To :

5.7.1.2.1 Extraction force (EIA 364-13)

The connector extraction force shall not be less than 10N initial and 8N after the specified insertion/extraction or durability cycles (at a maximum rate of 12.5 mm (0.492”) per minute).

- No burs or sharp edges are allowed on top of locking latches (hook surfaces which will rub against the receptacle shield).

- It is recommend to use a non-silicon based lubricant on the latching mechanism to reduce wear. If used the lubricant may not affect any other characteristic of the system.

5.7.1.2.2 Extraction force (EIA 364-13, USB 3.0 Micro Connector Family Only)

The connector extraction force shall not be less than 10N or more than 25N initial and less than 8N and more than 25N after the specified insertion/extraction or durability cycles (at a maximum rate of 12.5 mm (0.492”) per minute).

- No burs or sharp edges are allowed on top of locking latches (hook surfaces which will rub against the receptacle shield).

- It is recommend to use a non-silicon based lubricant on the latching mechanism to reduce wear. If used the lubricant may not affect any other characteristic of the system.